History of Telemedicine: Evolution, Context, and Transformation

*By Rashid L. Bashshur, Ph.D., and Gary W. Shannon, Ph.D.
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\$195.00; 415 pp.*

This magnificent book takes on a grand task and accomplishes it in a masterful fashion that serves both those who are already familiar with telemedicine and those who have never been exposed to it. Drs. Bashshur and Shannon have summarized the history of telemedicine in a book that is informative and academically rigorous, but also compelling and difficult to put down once begun. Not only does the book provide a comprehensive review of the history of telemedicine drawn from the literature, but also it is infused with evidence of their years of pioneering experience and dedication to promoting and advancing the field. Rashid Bashshur is Director of Telemedicine at the University of Michigan Health System and Emeritus Professor of Health Management and Policy in the School of Public Health at the University of Michigan. Gary Shannon is a Professor in the Department of Geography at the University of Kentucky and has affiliations with the Center for Appalachian Studies, the University of Kentucky Center for Health Services Research, and the Department of Behavioral Science. Their long involvement in telemedicine and their unique backgrounds have allowed them to create a panoramic view of its evolution. The importance of this work is underscored by the fact that its writing was supported by a grant from the National Library of Medicine.

The book is divided into six parts, each one dedicated to a different facet of the evolution of telemedicine and its changing environment. Throughout the text, the integral roles of technology and communication in healthcare since the beginning of time are clearly illustrated, and the very logical and almost inevitable progression to what we now call telemedicine is eloquently described. The first part of the book serves as introduction and provides some unique insight into the thinking process of the two authors as they wrote the book

and what it is they hoped to accomplish. Upon finishing the book, I went back and reread this section and, yes the authors did indeed accomplish what they set out to do.

The second and third parts are perhaps the most fascinating as they trace the roots of telemedicine back farther than one might imagine in an examination of communications technology and the delivery of healthcare through the ages. These two parts of the book are filled with numerous illustrations and photographs that not only show the ingenuity of early thinkers and pioneers in transforming communications, technology, and healthcare, but also show how often things reinvent themselves. For those claiming that telemedicine is something new to the late 20th or early 21st century and thus must be approached with care before allowing it to be practiced and reimbursed within mainstream healthcare, these two parts alone should show them the error of their way of thinking! The chapter on the technological foundations of telemedicine traces the invention of means to communicate both audibly and visually over long distances back to the ancient Greeks. Even the discussion of modern television and the digital revolution reinforces the idea that technology development is often derived from need and geography, building upon existing devices—often in parallel at multiple sites. At least seven countries lay claim to their scientists inventing television! The chapters on healthcare focus primarily on the British and American experiences and models, and throughout the book the American experience dominates. First-generation programs, including the Nebraska Psychiatric Program, the Massachusetts General Hospital Telemedicine Program, and the New Hampshire–Vermont Program, are rightly highlighted. For readers looking for a more global perspective, however, unfortunately it will not be found here. The only international programs described in any detail are some of those from Canada in one of the later chapters. Although the authors acknowledge that they purposely limited their scope, it is a shame that many of the important international programs have not been mentioned because their roles in the evolution of telemedicine is at least as important as those in North America.

Part four brings the reader to the modern area of telemedicine, starting with a review of the crucial role that NASA has had in telemedicine. In particular, a very nice overview of the oft-forgotten STARPAHC project that brought telemedicine to the very rural Papago Indian tribe (now Tohono O'odham) in Southern Arizona in the early 1970s illustrates the early important role that the Indian Health Service had and continues to have today in telemedicine. The first chapter in this section provides an overview of a number of early feasibility and demonstration projects that covered a wide variety of applications from simply transmitting medical records, to bidirectional television, and nursing home telemedicine. How each of these projects was derived from need, geography, and innovation is nicely laid out in the brief yet careful descriptions that provide insight to readers on how we came to be where we are today. The second chapter delves into five modern programs (Georgia, Arizona, Texas, Alaska, and Canadian programs) that have managed to survive and thrive since their inceptions. This chapter alone will make the price of the book worth it to anyone interested in starting or expanding their own telemedicine program. In particular, the different paths to sustainability that are described and what can happen when funding sources disappear is invaluable for anyone involved in telemedicine today.

The final two parts of the book are less on the history of telemedicine and more on some of the particular applications areas being practiced as well as some of the challenges that telemedicine is facing today in terms of gaining wider acceptance. In particular, the

discussion of the role of evidence and the very difficult challenges telemedicine has faced in terms of fitting into the traditional scientific model (i.e., the randomized clinical/controlled trials) is nicely laid out and provides suggestions as to what methods might be most fruitful to utilize (e.g., multi-institutional trials). As it is not possible to deal with every clinical application, these two chapters highlight the well-established specialties of disease management, telecardiology, teledermatology, telepsychiatry, and teleradiology. Disaster preparedness and response is also dealt with, although it is less mainstream than the other core specialties reviewed. Perhaps the one core specialty that has roots that extend back to the beginnings of modern telemedicine yet is not included in these chapters is telepathology, which is a bit disappointing given its clear role in the evolution of telemedicine.

In summary, this book presents a fascinating and compelling view of the history of telemedicine with particular emphasis on the importance of context, timing, and transformation. Although not completely comprehensive in the sense of focusing primarily on the North American experience, it provides numerous examples, lessons learned, and thoughts about the future that perhaps only these two authors with their depth of experience and knowledge could have compiled. The text is not only highly informative and well written, but it is a sheer pleasure to read for anyone interested in telemedicine.

—Reviewed by Elizabeth A. Krupinski, Ph.D.